Minnesota's Nonpoint Source Factsheet

South Fork Crow River Watershed, May 2017

Minnesota Pollution Control Agency

Minnesota's Water Quality Framework

Minnesota is a land rich in water resources that are used for a variety of purposes – recreation, drinking water, wildlife, irrigation, and industrial uses. Minnesota's lakes, streams, and other waters are vital to our quality of life. Protection and restoration of these water resources is a high priority to the citizens of Minnesota.

Minnesota's waters are protected and restored under the Clean Water Legacy Act. Clean Water Fund dollars come from the Clean Water, Land and Legacy Amendment that Minnesotans passed in 2008. These funds are used for water management activities such as monitoring, planning, and on-the-ground restoration and protection activities. Reduction of nonpoint source pollution is integral to the restoration and protection of our water resources. As a result, Minnesota has multiple programs that address nonpoint source pollution. Much of the effort to address and reduce nonpoint source pollution is integrated into Minnesota's Water Quality Framework, a four step process that includes federal, state, and local government participation along with citizen involvement.

Minnesota's Water Quality Framework

There are 80 major watersheds in Minnesota. Each major watershed is brought through this Water Quality Framework process within a 10-year cycle. This process includes Intensive Watershed Monitoring (IWM) and assessments; watershed characterization and problem investigation through Stressor Identification processes and Total Maxiumum Daily Load (TMDL) studies; Watershed Restoration and Protection Strategies (WRAPS) reports; comprehensive local water planning through county water plans or One Watershed One Plan (1W1P); and finally implementation at the local level.

WRAPS establish pollutant reduction goals, implementation strategies, and milestones to achieve water quality targets. Once a WRAPS is complete local partners can incorporate these goals and strategies into their county water plan or 1WS1P and implement the restoration and protection projects within their watershed. The most important role of state and federal agencies is to then provide implementation funding and technical assistance to the local partners.

Evaluating progress in achieving water quality targets is accomplished in two main ways; 1) monitoring of waterbodies; and 2) tracking/documenting the implementation actions and estimating the resulting pollutant load reductions. Effectiveness is measured by ongoing monitoring and, ultimately, the delisting of waterbodies that are no longer impaired. Under the Clean Water Accountability Act, once a WRAPS is completed the MPCA is required to report every two years on progress towards implementing milestones and achieving water quality goals. All completed progress reports can be found at: https://www.pca.state.mn.us/water/clean-water-fund.

Two additional statewide efforts that target non-point source pollution includes the 2015 Buffer Law, which requires riparian buffers along all public waters and public drainage systems (Minn. Stat. 103F.48) and Minnesota's Agricultural Water Quality Certification Program, which provides an oppertunity for farmers to take the lead in implementing conservation practices that protect our waters. Additional information regarding Minnesota's statewide nonpoint source reduction work can be found in Minnesota's Nonpoint Source Management Program Plan.

South Fork Crow River Watershed

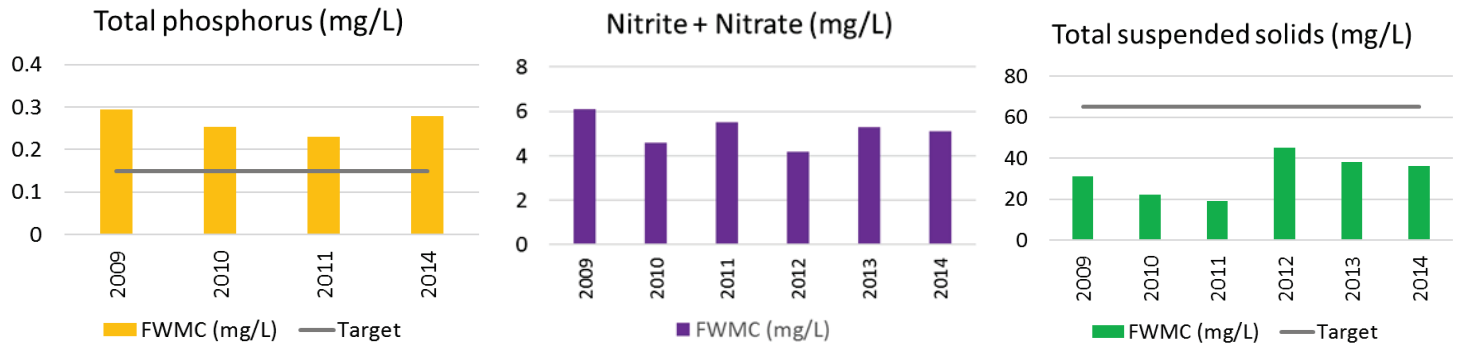
The South Fork Crow River (SFCR) major watershed is located in south central Minnesota and drains approximately 818,428 acres. The SFCR joins with the North Fork Crow at Rockford, and then joins the Mississippi River near Dayton. The majority of the SFCR watershed is within the western corn belt plains ecoregion, with a small portion extending into the north central hardwood forest ecoregion.

Monitoring and assessment of the SFCR watershed was completed in 2012-2013 and revealed the following impairments: total suspended solids, dissolved oxygen, bacteria, and nutrients. The SFCR is a major source of both sediment and nutrients to the Mississippi River. Primary stressors identified include altered hydrology, poor habitat, turbidity, bacteria, phosphorus and low dissolved oxygen. Pollutant source contributions within the SFCR watershed are generally dominated by agriculture, reducing agricultural pollutant loads is a high priority.

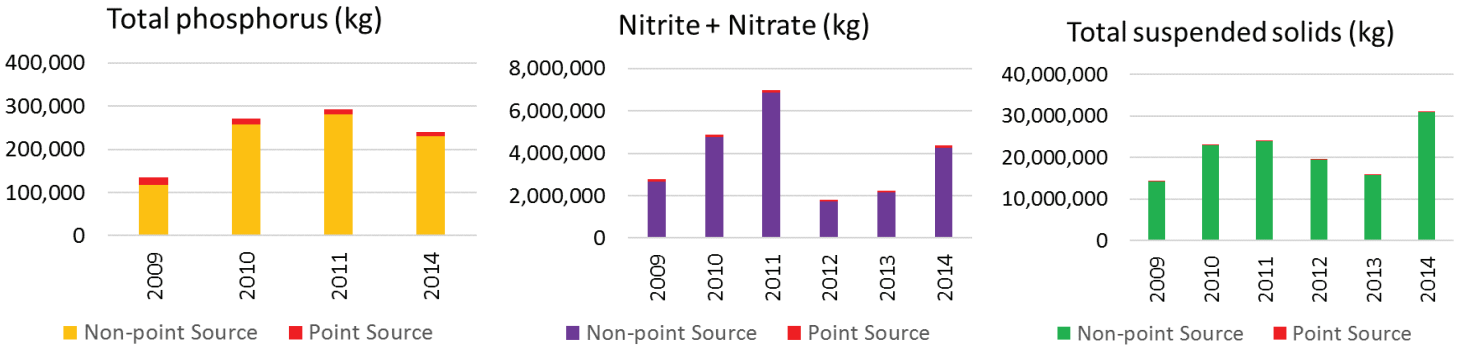
The SFCR watershed WRAPS is expected to be complete and ready for public notice in June 2017. The WRAPS will identify strategies and actions to be completed to reduce point and nonpoint source pollutant loads within the SFCR watershed. All completed reports, including the upcoming WRAPS and any future progress reports, are made available at the MPCA's SFCR wastershed webpage. MPCA will track future pollutant reductions within the SFCR watershed by continued pollutant load monitoring at Delano, MN and IWM that is scheduled for 2022-2023.

Water quality measurements

The graphs below show the annual flow weighted mean concentration (FWMC) of total phosphorus (TP), nitrite + nitrate ($NO_2 + NO_3$) and total suspended solids (TSS). FWMCs help to normalize pollutant loads across years with varying precipitation. The target identified for TP (0.15 mg/L) and TSS (65 mg/L) is the water quality standard. There is no aquatic life toxicity water quality standard for nitrate. The 10 mg/L Nitrate Maximum Contaminant Level (MCL) does not apply because the SFCR is not a drinking water supply. These data suggest that further reduction of phosphorus loading to the SFCR is necessary in order to ensure attainment of Minnesota's river eutrophication standards (RES) and that significant nonpoint source reductions will be necessary to ensure improved water quality in the watershed.



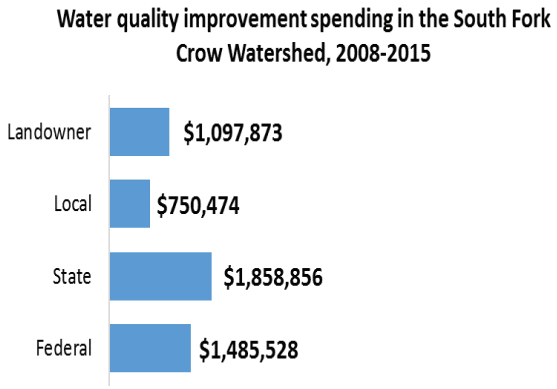
The pollutant load monitoring for the SFCR watershed is at Delano, MN. Water quality data are available at: https://www.pca.state.mn.us/water/data-viewer



Water quality data for the SFCR at Delano, MN are available at: https://www.pca.state.mn.us/water/data-viewer

Progress toward load reduction targets, 2008-2015

Ongoing investments in nonpoint source agricultural Best Management Practices (BMPs), septic system upgrades, wastewater treatment facility improvements and stormwater management are continuing to produce water quality improvements in the SFCR watershed. The data below shows nonpoint source investment and implementation efforts within the SFCR watershed that were reported to the Minnesota Board of Water and Soil Resources and the U.S. Natural Resources Conservation Services for the period of 2008-2015. Not all non-point source improvement projects within the SFCR watershed are included in these data.



Non-point BMP Activities in the South Fork Crow River Watershed, 2008 - 2015

BMP Type	Projects	Estimated Acres
Nutrient Management	1,180	53,021
Residue and Tillage Management	190	10,174
Wetland Creation/Restoration	87	884
Septic Systems	76	
Permanent Vegetative Cover	49	1,203
Buffers and Vegetative Treatment	27	428
Erosion Control/Protection	25	30
Ag Waste Management	23	29
Water & Sediment Control Basins	18	355
Diversions and Waterways	13	173
Cropland Diversity/Seasonal Cover	12	366
Feedlot Runoff Control	4	
Stormwater Runoff Control	3	10

While TMDLs have not been established yet to address RES impairments in the SFCR watershed and existing nitrate standards do not apply because the SFCR is not a drinking water source, pollutant reduction goals will be established in the SFCR watershed WRAPS which is expected to be drafted and ready for public notice in June 2017.

Minnesota's Nutrient Reduction Strategy (MPCA 2014) does establish 45% phosphorus and nitrogen reduction goals from 1980 to 1996 baseline conditions. A draft South Fork Crow River Watershed TMDL (MPCA 2016) also establishes TSS reduction goals for the mouth of the SFCR (Assessment Unit ID 07010205-508) of 9% during high stream flow conditions and 45% during very high stream flow conditions.

MPCA expects future investments in point and non-point BMP activities within the SFCR watershed to occur as Minnesota directs Clean Water Fund and other state or federal dollars to projects within the SFCR watershed. Funding and programs under the Clean Water Accountability Act , 2015 Buffer Law, and Agricultural Water Quality Certification Progam in addition to point source controls, over time, are anticipated to result in significant reduction in phosphorus and other pollutants within in the SFCR watershed.

The figures in this report are based on data from several agencies. For details, see: www.pca.state.mn.us/water/clean-water-fund.